



## WF28 User Manual

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WideFly Ltd.  
<http://www.widefly.com>

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### **FCC Statement**

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could avoid the users' authority to operate the equipment.

### **Important Safety Information**

PLEASE READ THIS CAREFULLY BEFORE USING WF28

- Always treat your product with care and keep it in a clean and dust-free place
- Do not expose WF28 to moisture or humidity
- Do not expose WF28 to extreme high or low temperatures
- Do not attempt to disassemble your product
- Use only the chargers and batteries approved by WideFly Limited. The use of any other type may invalidate any approval and warranty. No reverse charging with other chargers, they may have inverse polarity
- Never use the charger if the plug is damaged
- Never touch the charger if your hands/feet are wet
- Do not expose the charger to water, it may cause electrical fires
- Do not repair the charger yourself for your safety
- To reduce the risk of fire or burns, do not disassemble, crush or puncture the battery
- Recycle or dispose of the battery safely and properly according to local laws and regulations
- Do not dispose of the battery in fire or water
- Do not let the metal contacts on the battery touch other metal object, it could lead to short-circuit and damage the battery
- For WF28 model, only approval batteries, chargers that are designed for the model can be used with WF28 PDA unit

### **Document Revision History**

To facilitate reading of new or changed content, please see the change mark (vertical line) showing at the left hand side of the paragraphs.

<b>Doc version</b>	<b>Release Date</b>	<b>Author</b>	<b>Major Changes</b>
Rev 1.2	2007-10-08	James	<ul style="list-style-type: none"><li>■ Updated Chapter 6, Wi-Fi Roaming.</li></ul>
Rev 1.1	2007-07-12	James	<ul style="list-style-type: none"><li>■ Updates for ROM v1.0a or higher</li><li>■ Added Chapter 10: Terminal Services Client (TSC)</li><li>■ Added Chapter 11: System Clone, Backup/Restore &amp; ROM Upgrade</li></ul>
Rev 1.0	2007-06-01	James	<ul style="list-style-type: none"><li>■ First release of WF28 User Manual</li></ul>

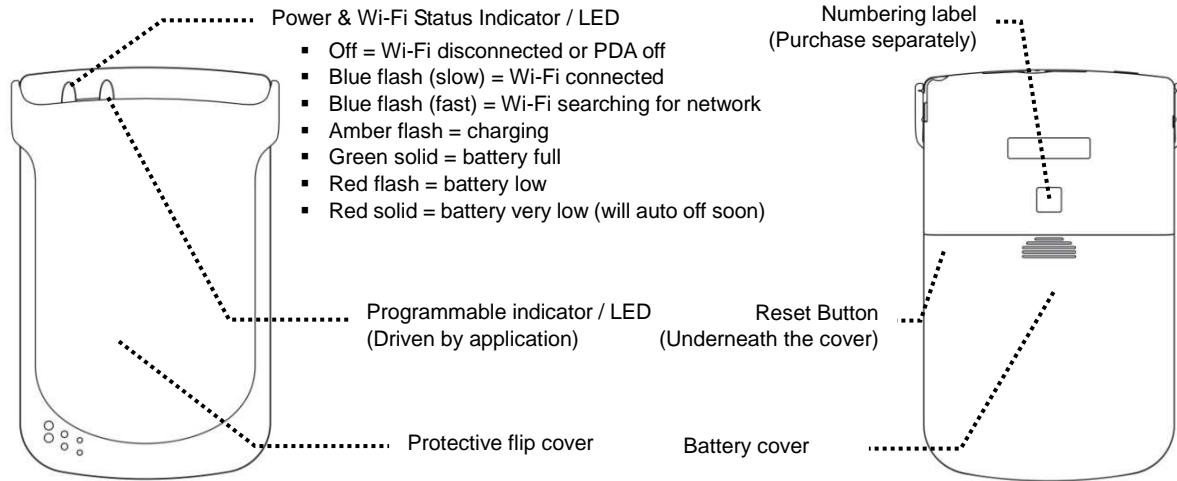
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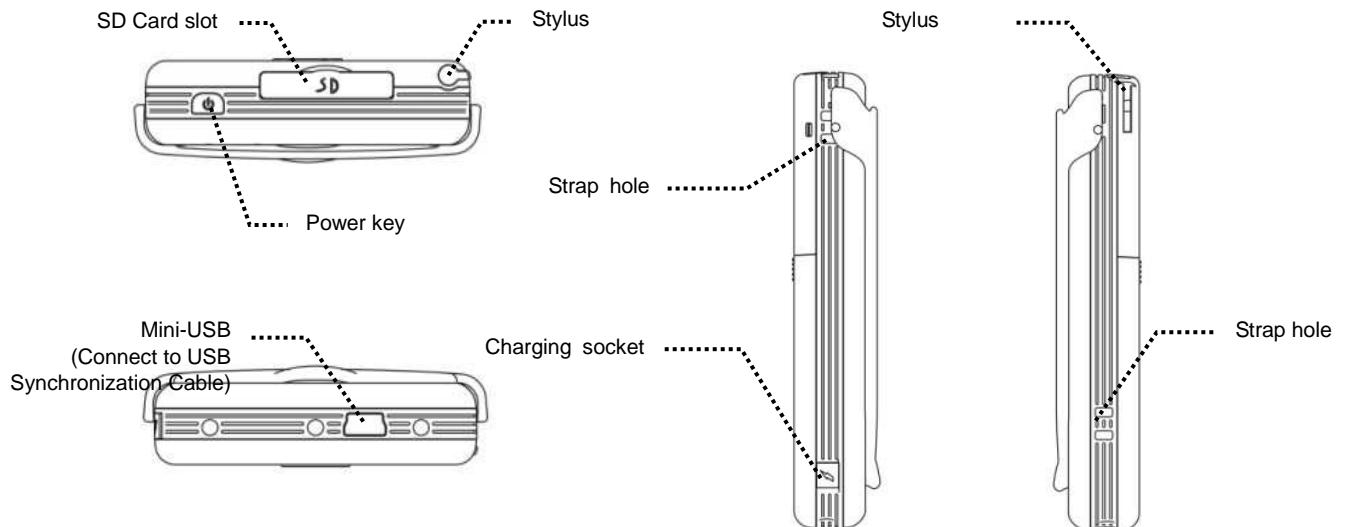
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## Chapter 1: Overview

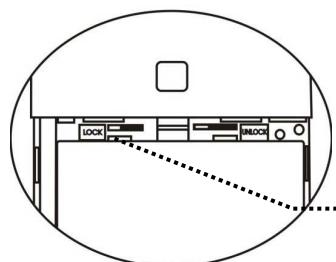
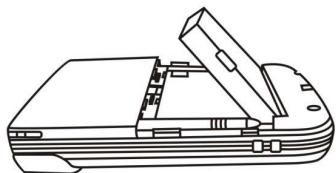
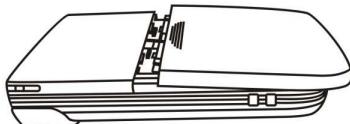
### Front & Back Panel Components



### Top, Bottom, Side Components



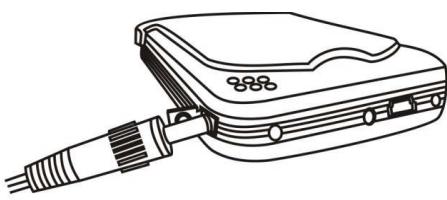
## Battery & Charging



### Loading Battery

- Pull down the battery cover
- Align the metal contacts of the battery with the contacts inside the battery compartment
- Lightly press the battery downwards until it fits the battery compartment
- If battery locking is required, push the battery lock leftwards

**NOTE:** users should be fully aware of this lock or forcibly unload of battery may damage the lock



### Battery Charging

- Plug the charger to the electrical socket
- Connect the charger plug to charging socket of the PDA
- During charging, status indicator / LED displays in amber flash
- When fully charged, indicator is turned to green solid



Battery is charging

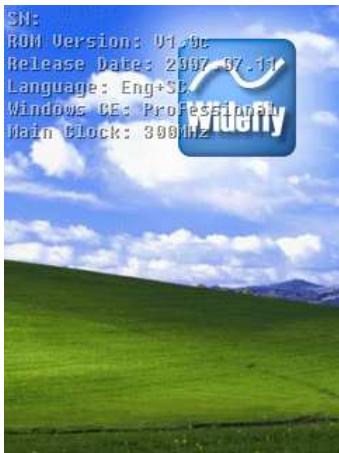


Battery is fully charged

### NOTE:

For a brand new battery, it takes approximately 2 hours 30 mins / 3 hours 45 mins to fully charge a 1200mAh / 1800mAh battery.

## Turn on / off



To turn on the PDA, press the power key.

During system boot up, some system information is displayed:

- Serial No. (SN), a globally unique no. to identify a PDA
- ROM version, the version of system firmware
- ROM release date
- ROM languages (Eng + SC is English plus Simplified Chinese. A multi-lingual system)
- Windows CE Edition (Professional Edition)
- Clock Speed (300MHz)



To turn off the PDA, press and hold the power key for 2 seconds.

System would pop up a message "POWER OFF" before turning off.

## Suspend (Sleep) / Resume (Wakeup)

PDA can be suspended like sleeping to achieve maximum power saving. When PDA is suspended, backlight and touch panel are off, CPU is in sleeping status while Wi-Fi can be kept connected.

To suspend PDA manually when it is on, lightly press the power key.

To resume (wake up) PDA manually, lightly press the power key again. Once resumed, PDA is back to the original status with backlight on and CPU running.

**NOTE:** Please refer to "chapter 7: Power" on detail description of sleep mode and power saving.

## **Soft Reset**

Soft reset may be necessary in case system does not response to any pressing of buttons & screen. The soft reset is like a reboot of system. It does not erase any installed programs or saved data.

Always save the data within the programs actively running on PDA before performing a soft reset or unsaved data may be discarded.



### **To perform a soft reset:**

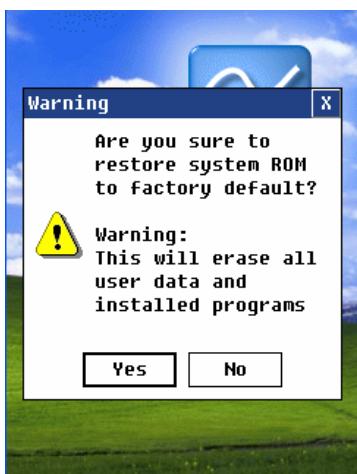
- Open battery cover
- Locate reset button near the top left hand corner of the battery
- Lightly press the reset button by stylus
- System will be rebooted

## **Clean Reset (Restore to factory default)**

In case a thorough reset of PDA is required, clean reset can be performed to erase all installed programs, settings and data. The clean reset is equivalent to restoring system to factory default.

### **To perform a clean reset:**

- Turn off PDA
- Open battery cover
- Locate reset button near the top left hand corner of the battery
- Turn on PDA and hold the power key (don't release)
- Lightly press the reset button by stylus
- Continue to hold the power key for 4 seconds or more
- Follow the screens below:



Confirm to perform clean reset  
(restore to factory default)



Double confirm



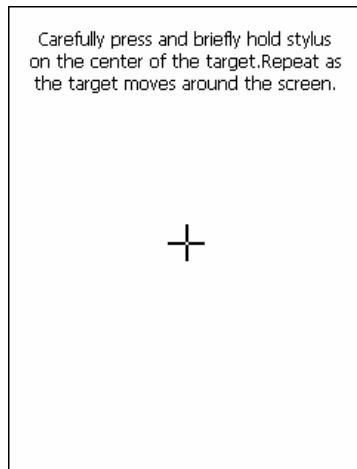
All system data is erased by system format

## **Stylus & Screen Calibration**

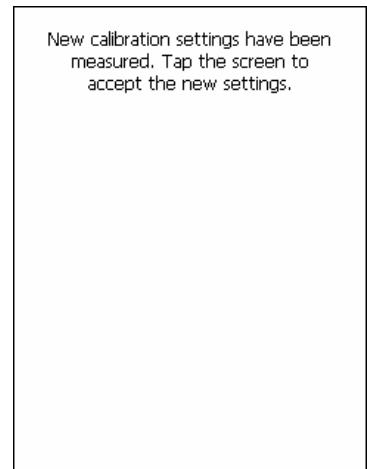
Ensure touch panel accurately responds to tapping positions on screen, recalibration may be necessary. Click **Start > Settings > Control Panel > Stylus > Calibration (Tab page)**



Screen calibration

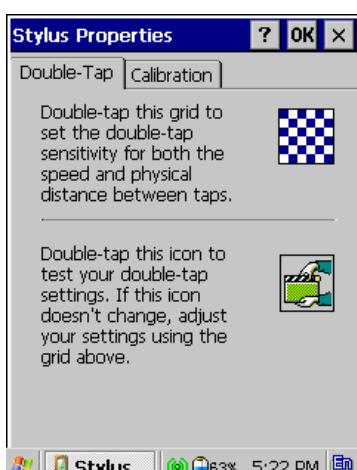


Follow targets and tap screen by stylus



Calibration completed

In case screen does not respond double click correctly, sensitivity of double-tap may need adjustment. Click **Start > Settings > Control Panel > Stylus > Double-Tap (Tab page)**

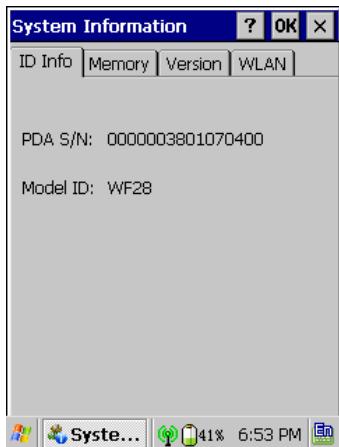


Set double-tap sensitivity

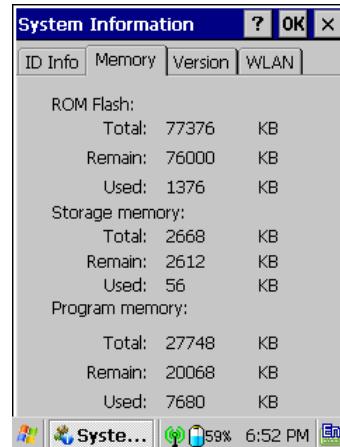
## Chapter 2: System Information

### Serial No., Memory & Version

System information provides important information for deployment and ongoing support. To access the info, tap **Start > Settings > Control Panel > System Info**



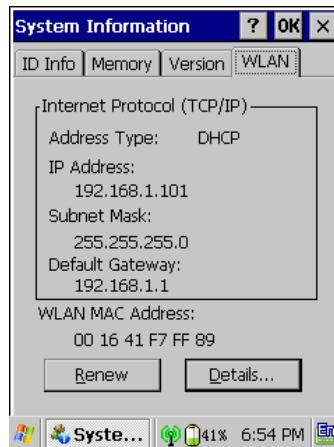
S/N is a globally unique serial no. to identify a PDA



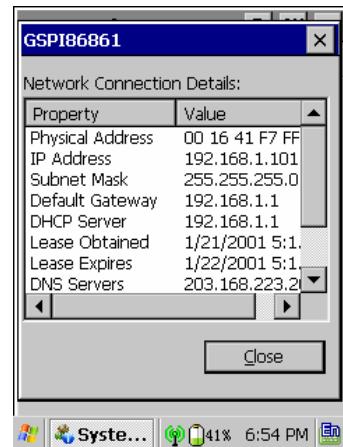
- Total flash memory doesn't count 32MB system ROM & 20MB Backup Disk (Actual flash total = 128MB)
- Storage memory refers to RAM allocated for system cache
- Program memory refers to RAM could be used by applications
- 32MB RAM is occupied by system ROM and thus 32MB RAM is left for applications & system cache



ROM version, release date & multi-lingual operating system



TCP/IP info of Wi-Fi network interface



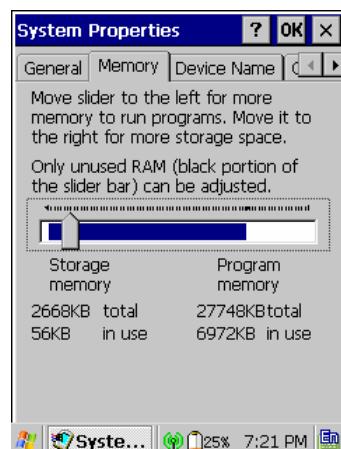
More detail about TCP/IP

### Operating System Information

Operating system information is accessed at **Start > Settings > Control Panel > System**



- Windows CE 5.0 Operating System
- Samsung Processor



- "Storage Memory" refers to system cache memory.
- Cache memory may be fine tuned to attain optimal system performance but excessive cache also reduces available memory for applications

## Chapter 3: Admin & User Mode

### Introduction

WF28 PDA has two distinct modes of operation: Admin and User Mode.

In admin mode, system administrators or field service technicians have full rights to configure system settings and install / un-install applications. This is a mode typically used for initial stage of setup & ongoing maintenance.

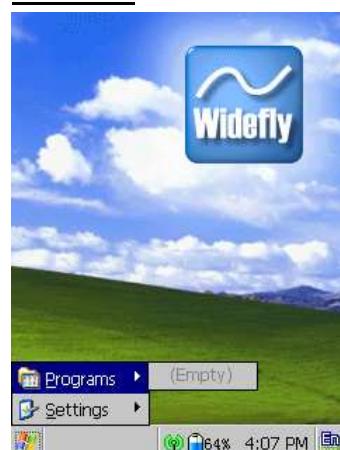
The user mode, as its name implies, is specially designed for end users who use WF28 PDA as a dedicated working terminal or appliance. As system configurations are completely hidden in user mode, e.g. IP address, Wi-Fi keys, application shortcuts & etc, system integrators (SIs) would find deploying WF28 much fewer support calls in compare with deploying consumer based PDAs. Since users have no way to gain access to file system in this mode, no files or local database can be tampered or taken out of the device. Therefore, data security could be enforced effortlessly.

The desktop / program shortcuts could be customized independently in admin and user mode. Standard control panel features in admin mode would be reduced in user mode. See the diagrams below for the differences

#### Admin Mode



#### User Mode



Start menu & desktop shortcuts could be configured to look differently in admin and user mode



In user mode, only a limited set of control panel features are available.

## **Admin Login & Default Mode**

A brand new WF28 is pre-configured to run as admin mode. All features can be accessed without restriction. To configure default boot up mode, follow the steps below:



### Admin Login

- Open battery cover
- Locate the reset button (near top left hand corner of battery)
- Turn off PDA
- Press and hold power key, then quickly lightly press the reset button
- Keep holding the power key for 1 seconds and release
- Admin login screen is shown
- Default admin password is 12345678 (password can be changed by administrator)

**NOTE:** Admin password should not be disclosed to end users.



### Admin Menu

- At the bottom screen, it shows "Default mode is admin". Therefore, every reboot of PDA would start as admin mode
- To change default mode as user, select "Change default mode"
- If administrator needs to go to user mode once to examine the user mode settings, simply tap "Start OS (User Mode)". Note that this will not change the default mode.
- Similarly, if default mode is user, administrator may go to admin mode once by tapping "Start OS (Admin Mode)"

## **User Mode Restriction**

The following table summarizes restrictions in user mode.

	<b>Admin</b>	<b>User</b>	<b>Purpose</b>
System settings change (Most are control panel features)	Yes	Disabled	<ul style="list-style-type: none"><li>▪ No changes of pre-configured environment by administrator</li><li>▪ No support call due to accidentally changes of settings</li></ul>
Application shortcut change (Desktop & Program shortcuts)	Yes	Disabled	<ul style="list-style-type: none"><li>▪ No changes of application environment</li></ul>
Program Installation / un-installation	Yes	Disabled	<ul style="list-style-type: none"><li>▪ No installation of unauthorized applications, e.g. games, personal utilities</li><li>▪ No removal of pre-configured applications</li></ul>
Direct access to Files & Local Database (via Windows Explorer)	Yes	Disabled (Administrator should not open Windows Explorer door in user mode)	<ul style="list-style-type: none"><li>▪ No unauthorized access to files &amp; database</li><li>▪ No copying of data out of PDA</li><li>▪ No program installation via SD card</li></ul>
ActiveSync connection	Yes	Disabled	<ul style="list-style-type: none"><li>▪ Prevent unauthorized installation / un-installation of applications</li><li>▪ Prevent direct access to files, local database &amp; system settings</li></ul>

## Customizing Admin / User Mode Shortcuts

Program shortcuts displayed in desktop or Start > Programs can be customized independently in admin & user mode. Typically, user mode may contain only one or two application shortcuts. Some special shortcut folders for different purposes are listed below:

Shortcut Purpose	Admin Mode	User Mode
Desktop shortcuts (Shown on top of wallpaper)	\Windows\Desktop	\Windows\Desktop_user
		
Programs shortcuts (Start > Programs)	\Windows\Programs	\Windows\Programs_user
		
** Auto startup programs, e.g. background process	\Windows\Startup	\Windows\Startup_user

**\*\* NOTE:** some system level programs placed in both \Windows\Startup & \Windows\Startup\_user should not be deleted: **MsIconControl.exe, ReadSysInfo.exe**

## autorun.inf

Configuring a large of no. of PDA could be a time consuming task. With this in mind, WF28 is specially designed to enable autorun of designated program when SDCard is inserted. For example, autorun application setup program when SD Card is inserted.

The autorun.inf is a plain text file that must be placed at the root directory of a SD Card. The format is as follows:

```
[autorun.inf]
Open=XXXX
```

Where XXXX is the program to run. Note that XXXX cannot contain space or it would be ignored, e.g. \POS\SetupApp.exe is valid but \POS\Setup App.exe would be ignored.

## **Change Admin Password**

It is recommended to change default admin password before deploying PDA to customer sites. To facilitate changing a number of PDAs with ease, a separate “Admin Password Changer” SDcard utility is provided.

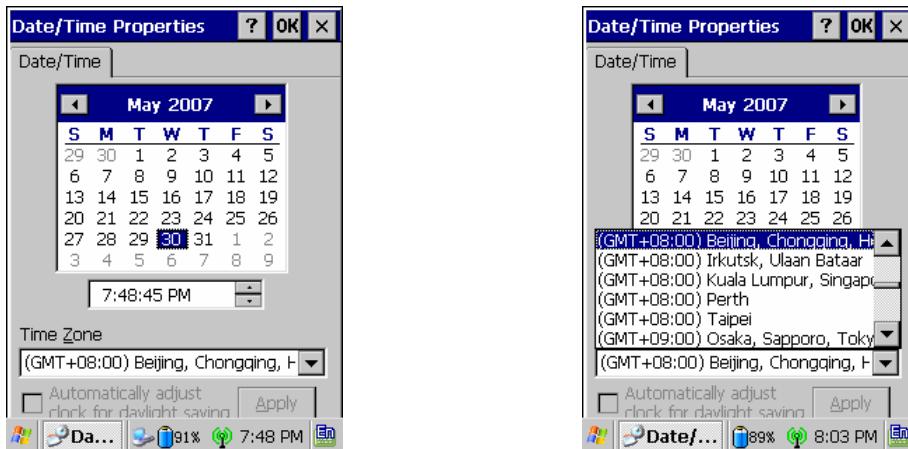


- Copy AdminPwdChanger.exe and password.txt to a SD Card folder
- Open password.txt and edit entry below:  
ENCRYPTION\_KEY=KKKKK  
OLD\_ADMIN\_PASSWORD=PPPPP  
NEW\_ADMIN\_PASSWORD=NNNNN  
where KKKK is a key combination of numbers & capital letters. Min length = 8, Max length = 16  
PPPPP is the original password  
NNNNN is the new password (Min length=8, Max length=16)
- Configuring an autorun.inf in SDCard to run AdminPwdChanger.exe utility, new password could be deployed to a number of PDAs easily

## Chapter 4: Regional Settings

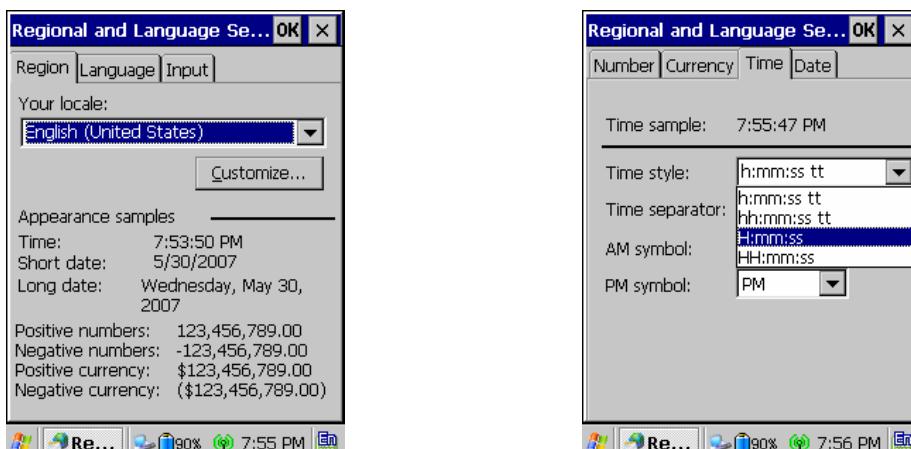
### Date & Time

To change date/time and time zone, click **Start > Settings > Control Panel > Date/time**



### Regional Settings

Regional settings like date & time format, number and currency format can be configured in **Start > Settings > Control Panel > Regional Settings**

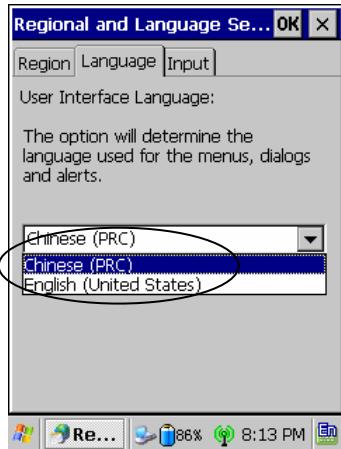


Change locale at "Your locale" dropdown list

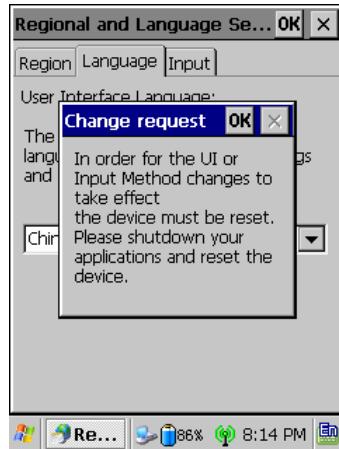
Customize time style. Clock on the taskbar would follow this setting.

## **Multi-lingual Operating System**

WF28 is a multi-lingual PDA. System language can be changed in **Start > Settings > Control Panel > Regional Settings > Language (Tab Page)**. It requires a reboot to make the change effective.



Change UI language to Chinese (PRC), i.e. Simplified Chinese



Reboot is required for the change



User interface language is changed to Simplified Chinese

**NOTE:** There are two type of Chinese characters: Simplified and Traditional Chinese. WF28 is specially designed to cover all common fonts of Simplified and Traditional Chinese, regardless of Eng+S.Chinese or Eng+T.Chinese ROMs. Thus, T.Chinese application should display correctly in Eng+S.Chinese ROM, similiary for S.Chinese application on Eng+T.Chinese ROM.

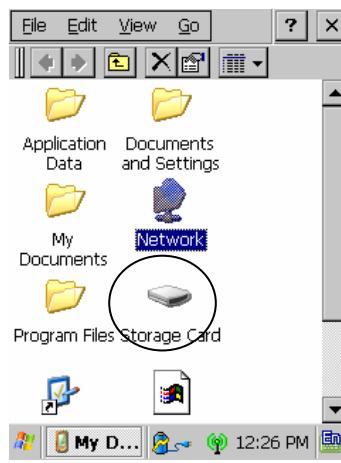
## Chapter 5: Windows Explorer (File Manager)

### Windows Explorer Options

Windows Explorer is one of most frequently used tool like File Manager. It provides all basic file operations like copy, cut, paste, delete & etc. There are options could be configured as follows:



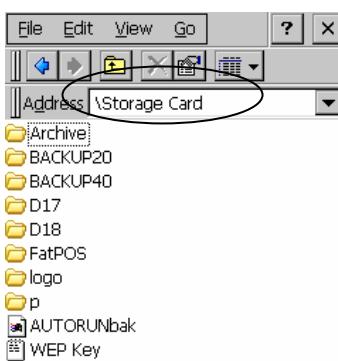
Windows Explorer can be access by "My device" & Programs



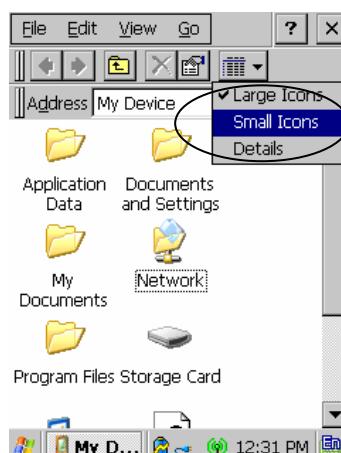
- Default style of file / folder display.
- Storage card is SD Card



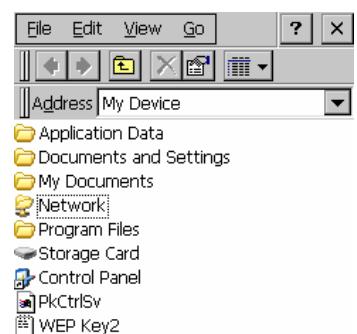
Display address bar (view > Address Bar)



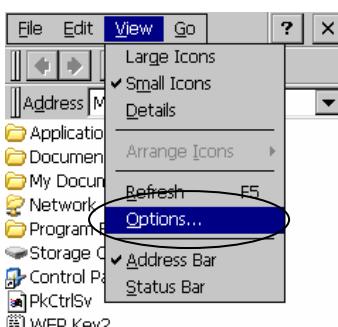
Folder "Storage Card" points to SD Card storage



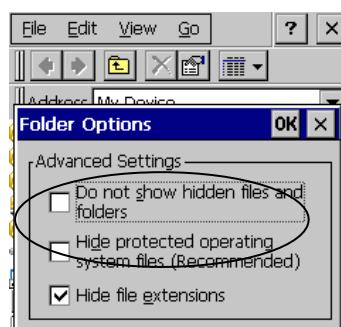
Change to Small Icons



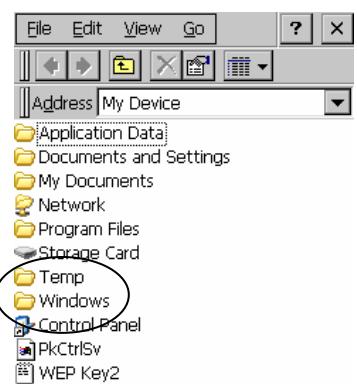
Small icons is the style for the fastest file / folder browsing



To display hidden & system folders / files, go to view > options



Uncheck options as above

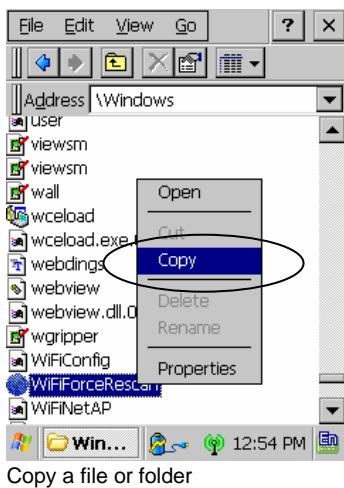


Temp & Windows are hidden or system folders

## **Creating Shortcuts**

There are 2 ways to create a shortcut: "Copy & Paste Shortcut" using Windows Explorer and ActiveSync.

The following is an example using Windows Explorer.

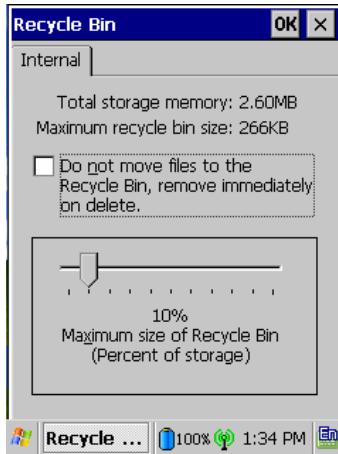


## **Recycle Bin**

By default, deleted files are temporary stored in Recycle Bin before they are actually deleted from the file system. The behavior and the capacity of recycle bin can be configured as follows:



Select properties

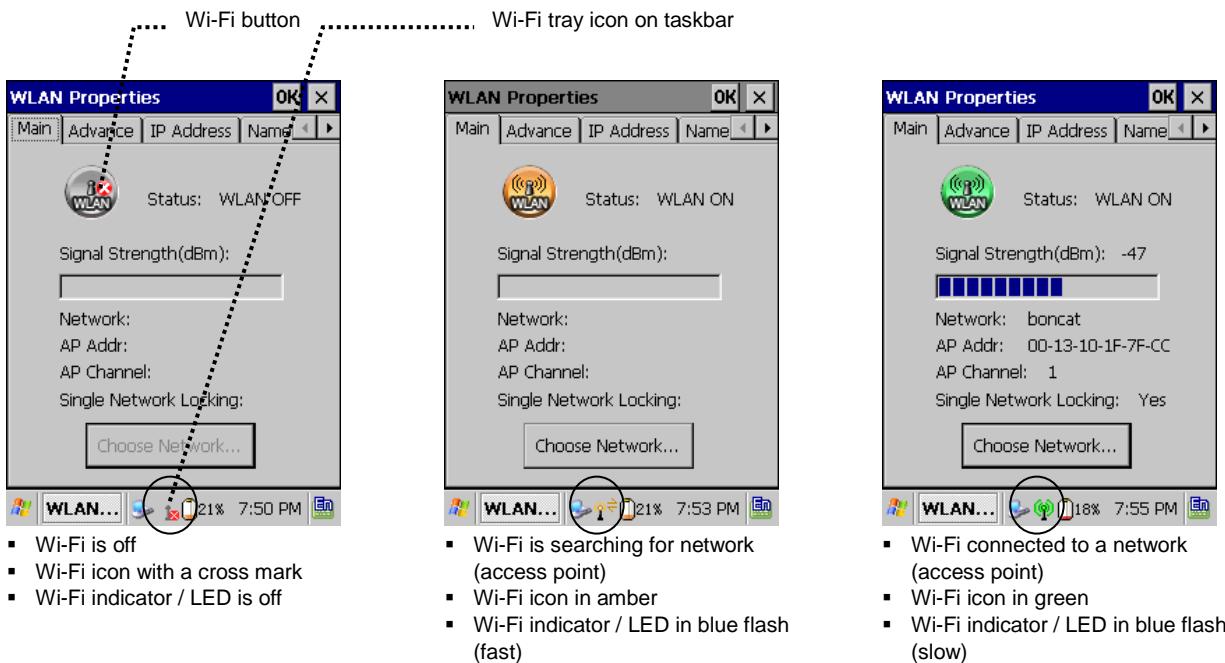


- Deleted files may be removed immediately by option “Do not move files to recycle bin...”
- The maximum size of recycle could be adjusted by the sliding bar

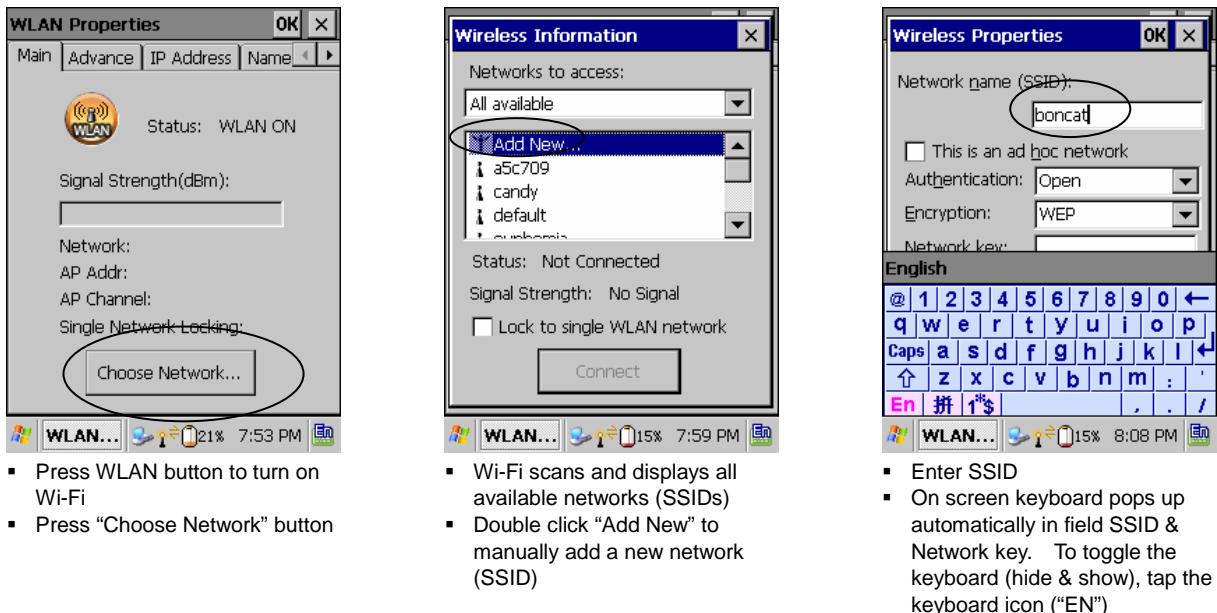
## Chapter 6: Wi-Fi

### Wi-Fi Status & Tray Icon

Detail Wi-Fi status is shown at **Start > Settings > Control Panel > WLAN**. Note also the Wi-Fi icon displayed at taskbar for different Wi-Fi status.



### Configuring Wi-Fi Network & Single SSID Feature





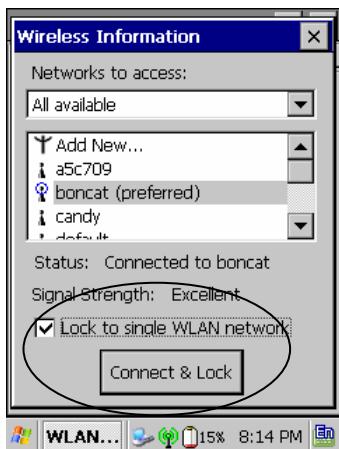
- Uncheck “The key is provided automatically”



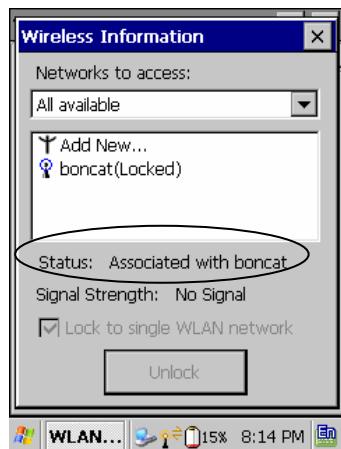
- Enter network key
- TIPS: long network key may be prepared in a text file and open by notepad (Start > Programs > PNotePad). Then, copy the key into clipboard memory. Tap and hold at “Network key” field and select Paste.



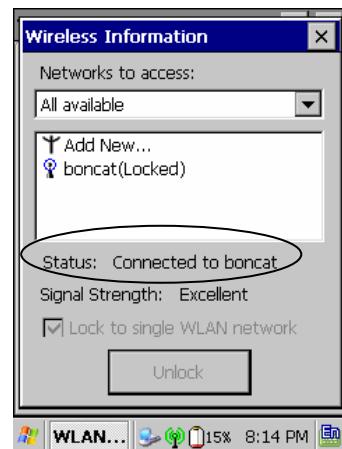
- After entered or pasted the network key, press OK



- Check “Lock to single WLAN network” and press “Connect & Lock”
- This is the **Single SSID feature**: under no circumstance Wi-Fi may connect to alien access points nearby but designated single SSID network.



- Wi-Fi has associated with a network

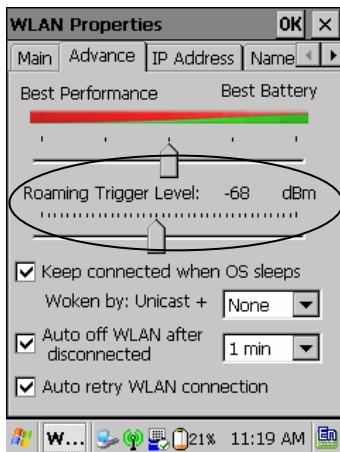


- Wi-Fi successfully connects to a network
- Wi-Fi icon is green

## Wi-Fi Roaming

Wi-Fi reliability lies in the ability and performance of unattended Wi-Fi roaming. Enhanced at driver / firmware level, WF28 typically roams across access points (with same SSID) less than one second. WF28 provides genuine roaming, which online application should be unaware of roaming process while network session (TCP/IP) could be maintained. This ensures no interruption on real-time application due to roaming issue.

To configure Wi-Fi roaming, tap **Start > Settings > Control Panel > WLAN > Advance (Tab page)**.



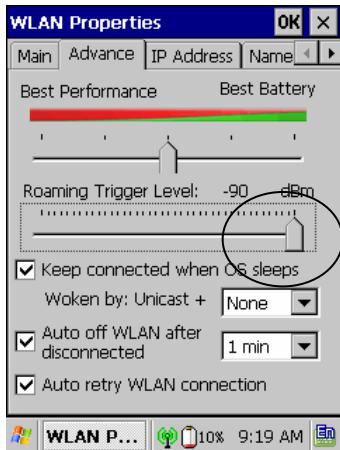
### Multiple Access Points (AP) Environment

For multiple AP site, it is important to perform wireless site survey to figure out the best placement of APs, which provides best coverage of wireless signal with least signal interference.

It should be optimal to configure Roaming Trigger Level around **-66dBm to -72dBm** level. For example in the left screen, it means when PDA detects signal strength weaker than -68dBm, Wi-Fi module would start searching for nearby APs while obeying single SSID rule. Once identified an AP with stronger signal, Wi-Fi would roam to that AP transparent to application & user.

### **Note:**

- For v1.0f or before, the default trigger level -72dBm may not be optimal as it may be marginal for some online application and thus **-68dBm** is recommended.
- Wi-Fi module always searches for an AP with **7dBm** better, i.e. if trigger level is -68dBm, it would search for an AP with -61dBm or better. Defining a trigger level like -60dBm may not achieve a good result because it needs to find a stronger AP with -53dBm. (-53dBm is where AP is very close to the PDA in few meters)



### Single Access Point Environment

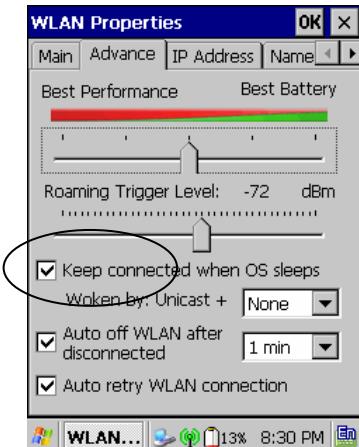
For single AP site, since there is no more AP with stronger signal that would be roamed, defining -90dBm is optimal. This effectively disables system from searching for nearby APs and thus save power.

### **TIPS:**

In other words, if roaming trigger level is -68dBm, it is equivalent to saying that the operating area of a site (excluding kitchen / restroom for example) has been completely covered by good signal, in the sense that the PDA should find at least one AP, in every single location, with -61dBm (search for one with 7dBm better) or better signal strength. Otherwise, application delay and interruption would be anticipated. This reveals the importance of wireless site survey to a successful wireless solution implementation.

## Always-on Wi-Fi

Start > Settings > Control Panel > WLAN > Advance (Tab page)



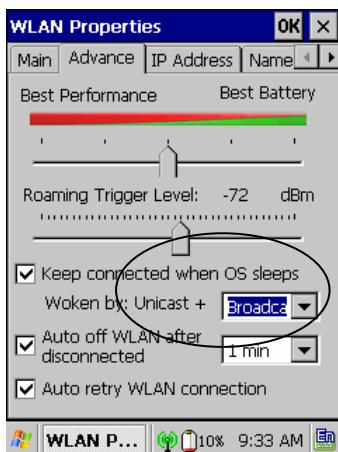
### Always-on Wi-Fi

WF28 is the first POS PDA features always-on Wi-Fi even PDA is in sleep mode, i.e. screen & touch panel are off, CPU is in sleeping status for maximum power saving while Wi-Fi connection is kept connected.

To enable the feature, click "keep connected when OS sleeps"

#### Developer Note: Unicast & Broadcast

When PDA is in sleep mode, it could be woken up by incoming network events so that application would be able to process the network packets timely.



In most cases, unicast network packet, i.e. those packets with designated device, is concerned by most POS application. This is true as long as the application is a point-to-point network application, e.g. client / server application. Therefore, "Woken by: Unicast" setting is optimal.

If application requires broadcast type of network packet, it is required to change to "Woken by: Unicast + Broadcast". However, it may defeat the purpose of power saving as single broadcast message would wake up all PDAs in the whole subnet.

#### Developer Note: ARP & Cache Timeout

ARP is an IP address to MAC address resolution protocol using broadcast type of network packet. When POS server sends TCP packets to a PDA, network subsystem would look up ARP cache table. If it finds the cache entry for the PDA, it would forward the packets to the designated MAC address. Otherwise, ARP would send out a broadcast message and waits for reply from the device, then build up the ARP cache entry.

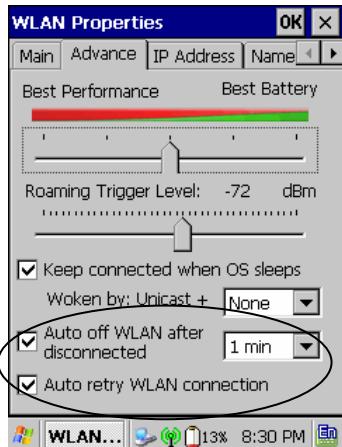
ARP cache entries will be expired. For Windows, default unused ARP entry would be expired in 2 minutes and reused ARP entry would be kept for maximum 10 minutes. When the entry is expired, ARP broadcast packets are required. Because of this behavior, if the PDA sleeps for more than 2 minutes and if it only accepts unicast packet (i.e. ARP request would not be listened), server may not be able to send network data to the PDA. This scenario would be fixed by increasing the ARP cache lifetime, e.g. few hours that equals to a daily operation.

In Windows, simply change the registry below and restart the system to make it effective:

HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters\ArpCacheLife  
Default value is 120 (2 minutes). It may be defined as 72000 (20 hours).

For details, please refer to <http://www.microsoft.com/mspress/books/sampchap/2453.aspx>

## Wi-Fi Auto Retry



**Start > Settings > Control Panel > WLAN > Advance (Tab page)**

When PDA is out of signal range of a designated AP (single SSID), system would start searching for another one in a limited duration defined in "Auto Off WLAN after disconnected". It is a design to prevent battery from drained quickly as Wi-Fi searching consumes lots of power. For example, WLAN will be off once searched for more than 1 minute.

If "Auto retry WLAN connection" is enabled, system would wait for 1 minute in WLAN off state and restart WLAN searching automatically. These auto off & retry mechanism helps balance the need of Wi-Fi connectivity and power saving. It also enables a predictable pattern of Wi-Fi connection mechanism.



When WLAN is auto off, system popup a dialog box at the bottom right hand corner and waits for next Wi-Fi auto retry. User may tap this box to force WLAN to start searching without waiting for next retry.

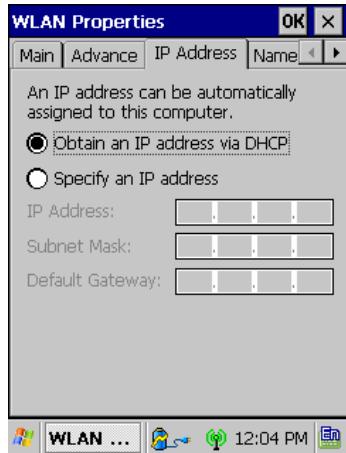


System comes with an end user utility for manual WLAN restart. It is located at \Windows\WiFiForceRescan.exe.

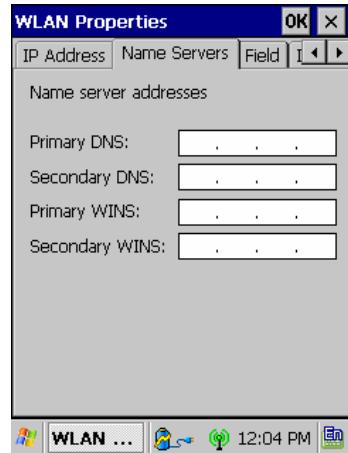
To create a shortcut, copy the exe and "past shortcut" on the desktop.

## **IP Address & DNS**

Start > Settings > Control Panel > WLAN >IP Address / Name Servers (tab page)



Define IP address

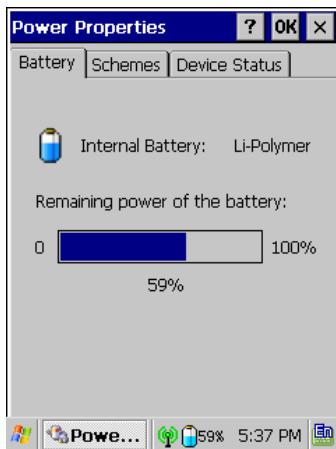


Define DNS servers

## Chapter 7: Power

### Power Settings

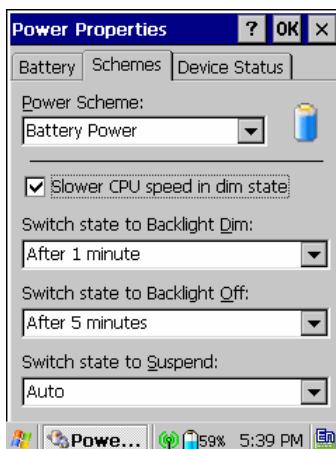
Power settings are defined at **Start > Settings > Control Panel > Power**



Battery page displays remaining power of the battery. Same info is also found in the power meter on the taskbar.

**Power scheme** defines power saving settings

- “Slower CPU speed in dim state” refers to PDA capability to run slower to save power when backlight is dim
- Power saving cycle follows 3 steps (refer to the left screen as an example):
  1. After 1 minute idle, backlight is dim and CPU runs slower. A screen tap would revert backlight to original intensity and idle timer is reset
  2. If dim state remains for another 5 minutes, backlight and touch panel would be turned off to save more power.
  3. Depending on suspend (sleep) setting, “Auto” would force CPU to enter sleep state with maximum overall power saving. if suspend setting is “Never”, CPU would remain in full speed.
- 4. Although system looks like off because tapping screen would not wake up the screen, Wi-Fi connection could be kept maintained and Wi-Fi indicator displays flash blue (slow), i.e. Wi-Fi connected.
- 5. In this scenario, most electronic components including Wi-Fi module are in superb low power state. This explains why WF28 is able to have Wi-Fi standby for few days.
- 6. Light press power key could wake up PDA to the original status: turn on backlight, CPU runs in full speed.



#### **NOTE:**

WF28 is the first POS PDA to have Wi-Fi always-on capability even system is in deep sleep mode. It behaves like a PDA phone that incoming SMS or call would wake up the system when screen and touch panel are both off.

User training may be necessary to get familiar with this power saving behavior. Most users appreciate the “power key to wake up” feature once they understand this helps extend battery life, without a need to recharge in a full day operation (It depends on volume of data transaction, operating hours & power settings). WF28 PDA provides 1200mAh & 1800mAh battery options.

## Battery Level



When battery level drops down to **10%**

- Power indicator / LED turns to red flash

When battery level drops down to **5%**

- System popup Battery warning
- Power indicator / LED turns to red solid



When battery level drops down to **1%**

- System popup auto shutdown warning box
- Power indicator / LED remains in red solid

## Chapter 8: Keyboards & Input Methods

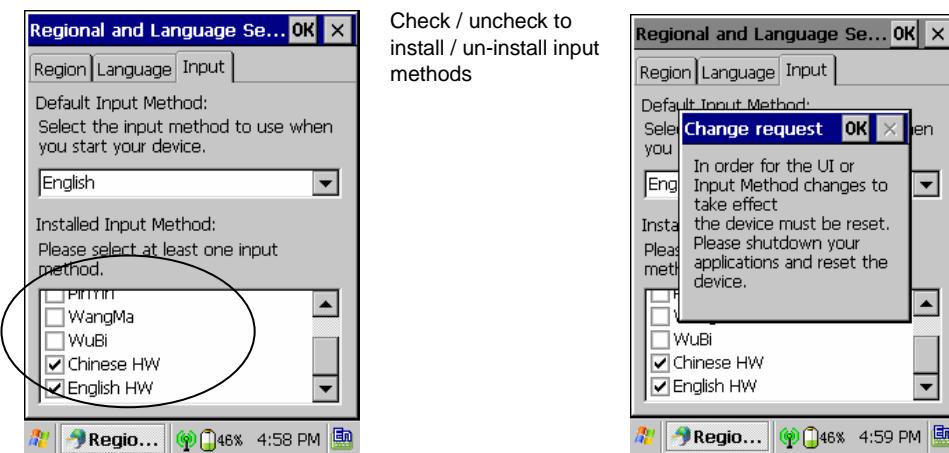
### On Screen Keyboard / Change Input Method

On screen keyboard can be hidden or shown by tapping the keyboard icon. It works like a toggle.



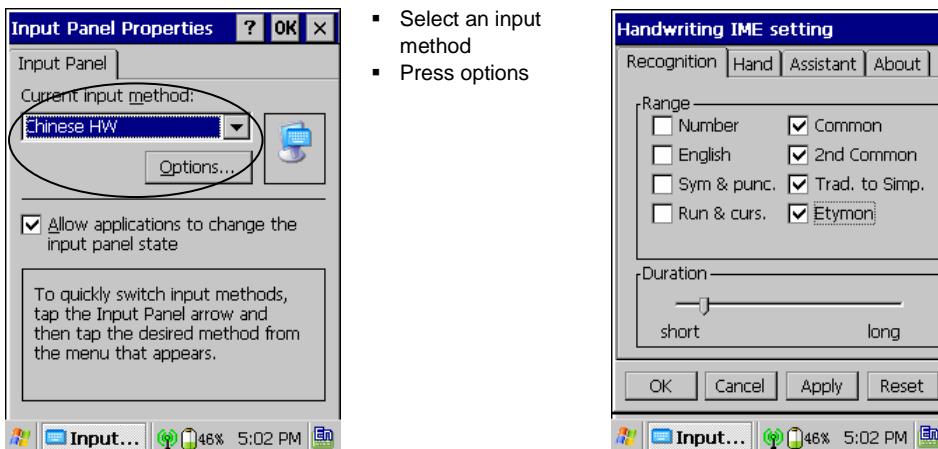
### Install / Un-install Input Methods

Tap Start > Settings > Control Panel > Regional Settings > Input (tab page).



### Configuring Input Method

Tap Start > Settings > Control Panel > Input panel

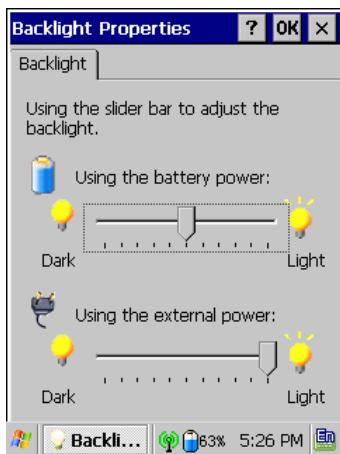


To change the input method, tap and hold the keyboard icon and drag upwards. It would display a list of preset input methods

It needs a restart of PDA to make changes effective

## Chapter 9: General Configurations

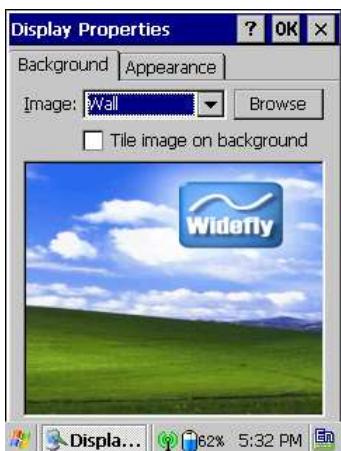
### Backlight



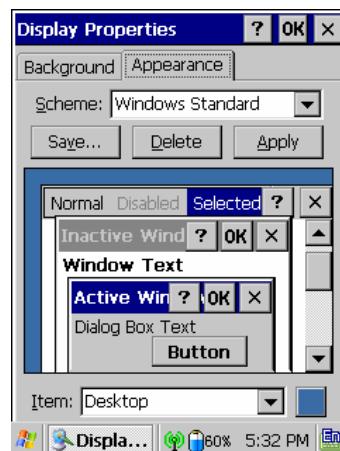
Adjust backlight intensity at **Start > Settings > Control Panel > Backlight**.

### Display

Wallpaper and Windows style, e.g. default font, can be defined at **Start > Settings > Control Panel > Display**

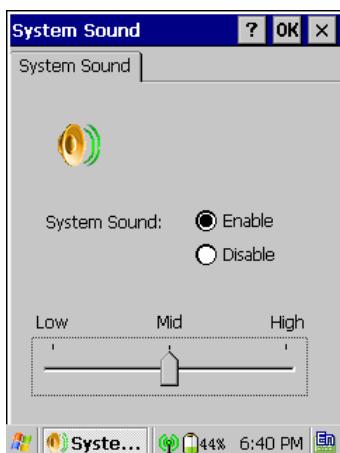


Change locale at "Your locale" dropdown list



Select scheme to change the Windows style

### Sound

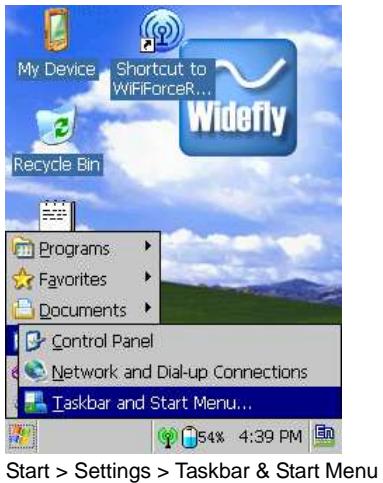


Adjust system sound level at **Start > Settings > Control Panel > Sound**. The sound could be turned off for quiet restaurant environment.

**NOTE:** Music playable speaker is removed in WF28 PDA. This effectively disables entertainment elements, that may be found in most consumer PDAs, like MP3 and video players.

## Taskbar

There are few options to configure a taskbar.



Start > Settings > Taskbar & Start Menu



Options for taskbar



If "show task switching button" is selected, it needs reboot to make it effective



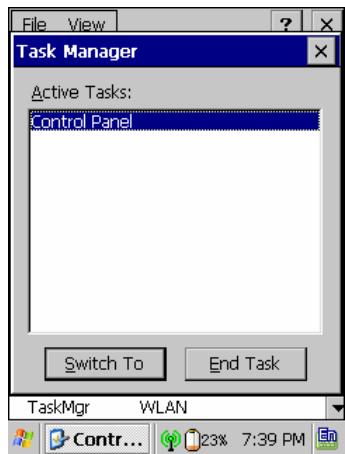
Bottom right hand corner displays an icon which allows switching of active applications / programs

**NOTE:** It is suggested to turn off this feature in user mode as user may accidentally minimize active application in the taskbar. However, developers or system administrators may find it convenient to switch between different windows for more complicated tasks

## **MSR**

(This is a feature reserved for MSR hardware)

## **Task Manager**



Task Manager at **Start > Settings > Control Panel > TaskMgr** helps list all active applications.

It provides “End Task” function to force close applications especially for those behave abnormally. For instance, some applications may be hang up without responding to any screen tap.

## Chapter 10: Terminal Services Client (TSC)

### TSC & Autologon

(Note: This is a feature applies to ROM version v1.0a or above)

WF28 supports Microsoft Terminal Services Client (TSC) and unique autologon feature. To connect to Terminal Server, start **Remote Desktop Connection** on desktop



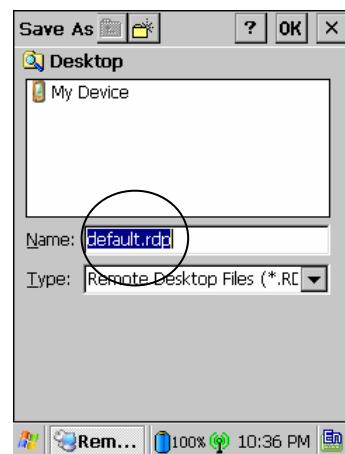
Remote Desktop Connection is TSC



Select Options



"Save my password" & "Save As" would create shortcut (RDP file) for connecting Terminal Server with autologon feature



Save as a shortcut to Desktop



A TSC shortcut (RDP file) is created

## Sample RDP File

The shortcut created by TSC is in RDP (Remote Desktop Protocol) file format. By default, the RDP is created with full screen, QVGA screen size, 16-bit color & etc. The following is a sample RDP file. Note that password is encrypted in field "Password:b:".

## RDP File & Security

This is **HIGHLY** recommended RDP file should only be used by end users under User Mode. In this mode, the content of RDP file, so as the encrypted password information, would not be read by anyone other than system administrator.

## RDP File Format

RDP file may be edited to change its behavior. However, it should be noted that RDP file must be saved in UNICODE format or system would not be able to read it. Notepad of XP may be used for editing purpose as it support UNICODE.

Keyword:type:value	Description
AudioRedirectionMode:i:0	Indicates where the audio plays. A value of zero (0) indicates that the audio plays on the host computer. A value of 1 indicates that the audio plays on the remote device. A value of 2 indicates that the audio does not play.
AutoReconnectionEnabled:i:1	Indicates whether an attempt is made to automatically reconnect to

	the host if a connection is lost. A value of 1 indicates that automatic reconnection is enabled. A value of zero (0) indicates that it is disabled.
BBarEnabled:i:1	Indicates whether to display the connection bar. A value of zero (0) indicates that the connection bar is not displayed. A value of 1 indicates that it is displayed.
BBarShowMinimizeBtn:i:1	Indicates whether to display the minimize button on the connection bar. A value of zero (0) indicates that the minimize button is not displayed. A value of 1 indicates that it is displayed.
BbarShowPinButton:i:0	Indicates whether the pin button on the connection bar is displayed. A value of zero (0) indicates that pin button is not displayed, the connection bar remains on top, and all server output will appear below it. A value of 1 indicates that the pin button is displayed so that a user can unpin the connection bar from the UI.
BBarShowRestoreBtn:i:1	Indicates whether to display the restore button on the connection bar. A value of zero (0) indicates that the restore button is not displayed. A value of 1 indicates that it is displayed.
BBarPinned:i:1	Indicates whether to pin the connection bar to the shell. A value of zero (0) indicates that the connection bar is hidden automatically when the cursor is moved away from the connection bar. A value of 1 indicates that the connection bar is always displayed.
BitmapCacheSize:i:1500	Specifies the size, in KB, of the bitmap cache in memory. The maximum value is 32000.
BitmapPersistCacheLocation:s :Temp	Indicates the location of the bitmap cache.
BitmapPersistenceEnabled:i:0	Indicates whether bitmap caching is selected. A value of zero (0) indicates that bitmap caching is not selected. A value of 1 indicates that it is selected.
ColorDepthID:i:4	Indicates the color depth in bits per pixel (bpp). A value of zero (0) indicates 4 bpp. A value of 1 indicates 8 bpp. A value of 2 indicates 15 bpp. A value of 3 indicates 16 bpp. A value of 4 indicates 24 bpp.  The default value is either 24bpp, or the color depth at which the OS boots, whichever is less.
Compress:i:1	Enables file and directory compression. Compression is on by default and it is recommended that it remain so.
ConnectToServerConsole:i:0	Used only in non-Windows-based Thin Client configurations. It indicates the console to connect to from the command line. A value of zero (0) indicates that the command connects to a Terminal Services session. Windows XP Professional ignores this setting. A value of 1 indicates that the command connects to the host console.
desktopheight:i:1024	Indicates height of the display, in pixels. The default value is the resolution at which the OS boots.
desktopwidth:i:1280	Indicates width of the display, in pixels. The default value is the resolution at which the OS boots.
disable full window drag:i:1	Indicates whether full window drag capability is enabled or disabled. A value of 1 indicates that full window drag is enabled. A value of zero (0) indicates that it is disabled.
disable menu anims:i:1	Indicates whether menu animation is enabled or disabled. A value of 1 indicates that animation is enabled. A value of zero (0) indicates

	that it is disabled.
disable themes:i:0	Indicates whether themes are enabled or disabled. A value of 1 indicates that themes are enabled. A value of zero (0) indicates that themes are disabled.
disable wallpaper:i:1	Indicates whether wallpaper is disabled or enabled. A value of 1 indicates that wallpaper is enabled. A value of zero (0) indicates that it is disabled.
Disable FileAccess:i:1	Indicates whether the user has access to the local file system. A value of 1 indicates that access to the local file system is disabled and the <b>Save As</b> and <b>Open</b> buttons are not available in the UI. A value of zero (0) indicates that the user has access to the local file system.
domain:s:C1554501-A	Indicates the domain of the person who can log on to the remote device. There is no default.
EnableDriveRedirection:i:1	Indicates whether drive redirection is enabled. A value of 1 indicates that drive redirection is on. A value of zero (0) indicates that it is off.
EnablePortRedirection:i:1	Indicates whether COM port redirection is enabled. A value of 1 indicates that COM port redirection is on. A value of zero (0) indicates that it is off.
EnablePrinterRedirection:i:1	Indicates whether printer redirection is enabled. A value of 1 indicates that printer redirection is on, and a value of zero (0) indicates that it is off.
EnableSCardRedirection:i:1	Specifies whether redirection of smart cards is allowed. A value of 1 indicates that redirection of smart cards is on. A value of zero (0) indicates that it is off.
KeyboardHookMode:i:2	Indicates what is displayed when ALT-TAB is pressed on the keyboard. A value of zero (0) indicates items on the local device are displayed. A value of 1 indicates items on the remote device are displayed. A value of 2 indicates that the device is full-screen only.
MaxReconnectAttempts:i:20	Indicates the maximum number of attempts that are made to reconnect to the host after a connection is lost.
MCSPort:i:3389	Indicates the alternate Winsock port for the RDP. The default value is 3389. Change this value to an appropriate value if the terminal server is listening on a different port.
Password:s:<password>	Indicates the password of the person identified in the UserName keyword.  <b>Note</b> Windows CE reads saved passwords, but does not have the ACLs to securely write passwords.
ServerName:s:65.4.18.	Specifies the IP address of the remote device.
StartFullScreen:i:1	Indicates whether the Terminal Service session starts in full screen. A value of 1 indicates that the session starts in full screen. A value of zero (0) indicates that it does not.
AlternateShell:s:<startup shell or application>	Indicates the alternate shell or startup application to use in a session.  <b>Note</b> You can restrict usage after a user logs in by setting this value to a specific application on the server. The user will only be allowed to use the application that you specify.
UserName:s:<name>	Indicates the user name of a person who can log on to the remote device.

WorkingDir:s:<folder>	Indicates the folder that contains the alternate shell or startup application.
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## Chapter 11: System Clone, Backup/Restore & ROM Upgrade

(Note: This is a feature applies to ROM version v1.0a or above)

### **Introduction**

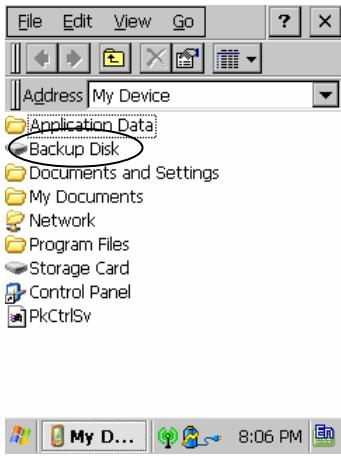
WF28 is the first POS PDA features powerful System Clone (similar to Ghost utility), Backup / Restore & ROM upgrade tools at no additional cost. Since this is a feature fully integrated with System ROM, it is always ready to use even the PDA is being configured starting from scratch after clean reset.

With backup tool and user mode locking PDA configurations, it dramatically changes the way of deploying & supporting PDA solutions. To see the benefits, see the comparison below:

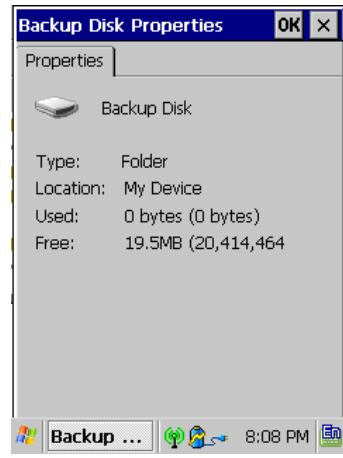
Scenario	Consumer PDA	WF28 PDA
PDA setup	<ul style="list-style-type: none"><li>■ Setup one-by-one, very time consuming</li><li>■ Must be performed onsite</li><li>■ Standardization of configurations is very difficult</li></ul>	<ul style="list-style-type: none"><li>■ Prepare one master image and clone to many PDAs</li><li>■ All backup images could be prepared at office before restoring to PDA onsite</li></ul>
Local Backup Disk	<ul style="list-style-type: none"><li>■ No local backup disk</li><li>■ Extra SD Card is required for each PDA and is subject to lost easily</li></ul>	<ul style="list-style-type: none"><li>■ Default 20MB backup disk is created locally on the PDA</li><li>■ Individual system backup could be stored in this local backup disk</li><li>■ No extra SD Card is required</li></ul>
Accidental changes of PDA setup	<ul style="list-style-type: none"><li>■ Very easily</li><li>■ Create interruption to operations</li><li>■ Onsite support is required</li></ul>	<ul style="list-style-type: none"><li>■ Virtually zero support as end users cannot change any configurations in User Mode</li></ul>
Performance of restore	<ul style="list-style-type: none"><li>■ Slow</li><li>■ Typically more than 5 minutes</li></ul>	<ul style="list-style-type: none"><li>■ Very Fast</li><li>■ Typically less than 1 minute</li></ul>
ROM upgrade	Separated utility and procedure	Upgrade like standard system restore

## Local Backup Disk

From version v1.0a onwards, a default 20MB “Backup Disk” is partitioned from the onboard 128MB flash memory.



Local Backup Disk



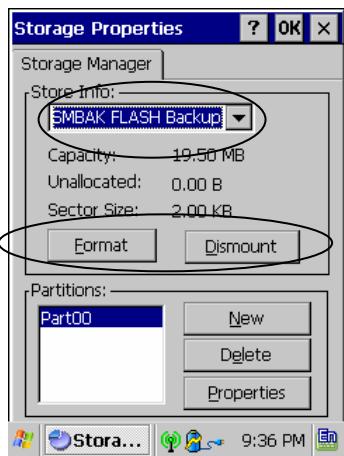
Default size is 20MB

For best practice of PDA deployment, system administrators should create a snapshot backup image and store it locally for each PDA every time when configurations are changed. In case of system recovery, end users could restore from this local backup image very quickly and effortlessly without calling technical support. This helps realize zero support of PDA and significantly cut support cost. To end users, this self-service recovery would minimize interruption to PDA operations.

WF28 is specially designed not to erase any files in local backup size if Clean Reset is performed. This is to ensure system administrators still have a chance to retrieve the last known good backup image.

## Missing Backup Disk

If local backup disk is missing, goto **Start > Settings > Control Panel > Storage Manager**



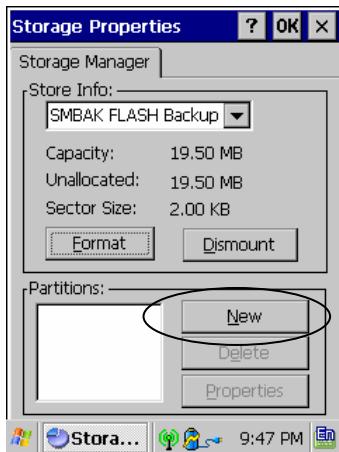
Select “SMBAK FLASH Backup”

Press “Dismount” and then “Format”

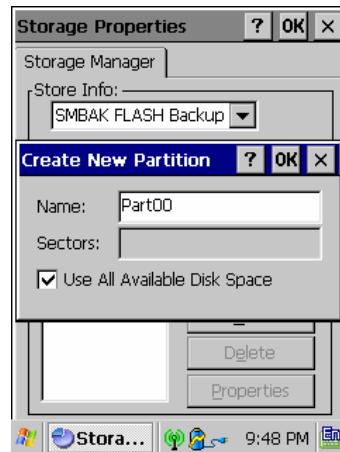


Press Yes to confirm to format the backup disk

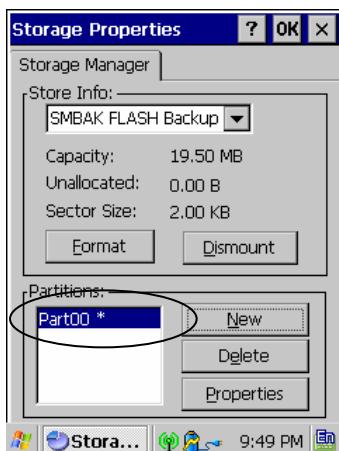
Wait until format completes



Press "New" to create partition

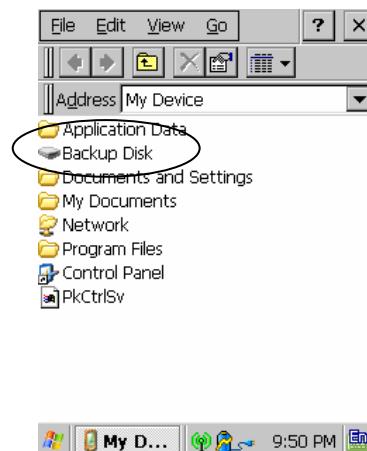


Enter "Part00" as the name of the new partition



Partition "Part00" is created

The suffix \* indicates this is mounted



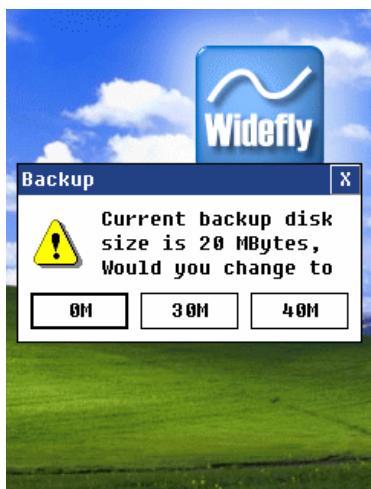
Local backup disk is found in File Manager

## **Configure Backup Disk Size**

The local backup disk size may be changed to 30MB, 40MB or 0MB other than the default 20MB. For 0MB, it effectively removes the backup disk to attain maximum system storage memory but it is not recommended.



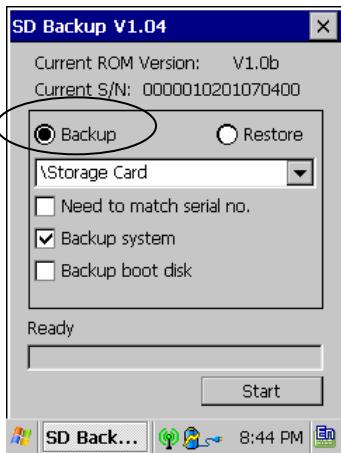
To change it, you have to logon to Admin menu (refer to Chapter 3: Admin & User Mode) and select option "Configure Backup Disk Size".



Once confirmed the backup disk size, it would re-partition the 128MB onboard flash memory and thus all data including backup disk would be removed and re-formatted.

Note: backup image files would be lost because of re-partitioning

## Backup Options



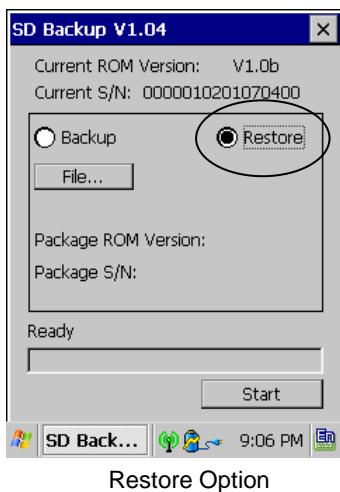
Under Admin mode, start backup at **Start > Settings > Control Panel > System Backup > Select Backup option**

- **Backup location:** SDCard (\Storage Card) or Local Backup Disk (\Backup disk)
- **Need to match serial no:** If checked, backup image could only be restored on the same PDA
- **Backup System:** This is the default and recommended backup option as it enables fast system restore by creating small backup image, typically in few MB. This option is best used with "Backup disk" location. However, it also requires restore on the same ROM version. This option would **NOT** backup admin password & default mode of PDA
- **Backup boot disk:** This creates backup image with ROM files, typically more than 32MB. This option is best used for ROM upgrade purpose. This option would backup admin password & default mode of PDA

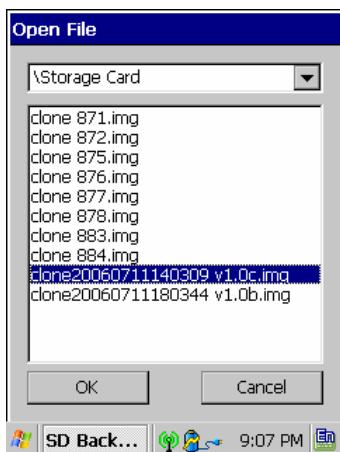
### Note:

- Backup option is disabled in user mode
- Backup filename is in format cloneCCYYMMDDHHMMSS.img
- Backup file could be renamed but prefix "clone" & suffix ".img" must be maintained, e.g. clone Restaurant A.img
- When backup starts, Wi-Fi would be stopped automatically for the best backup performance
- Backup would not start if battery is under 50%. However, it doesn't apply if PDA is being charged

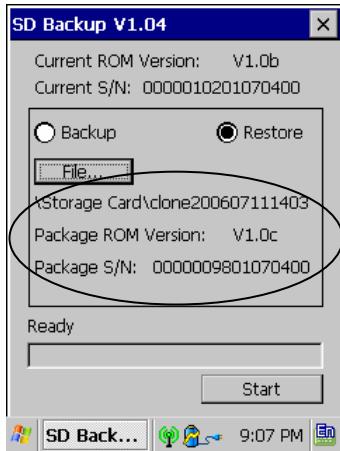
## Restore Options



Restore Option



Select backup image file



Start Restore

Start restore at **Start > Settings > Control Panel > System Backup > Select Restore option**

### Step 1: Precaution for ROM upgrade !!!

- If you are restoring boot disk, i.e. ROM files, it is **HIGHLY** recommended PDA is plugged with the charger. Should power suddenly stop during restoring, ROM files may be corrupted, which means returning to factory for repair may be necessary
- Stop Wi-Fi to ensure maximum restore performance. Goto **Control Panel > WLAN > Press WLAN button** to turn it off

### Step 2: Select backup image file

- Select File...
- Select location: SDCard (\Storage Card) or Local Backup Disk (\Backup disk)
- Select backup image file (those with prefix "clone" & suffix ".img")
- Press OK

### Step 3: Start Restore

- The panel displays info of the selected backup image file, e.g. ROM version & original S/N
- Press Start to restore
- Once started, it would check the integrity and condition of backup image file. The restore process would be stopped if the one of the following conditions is true:
  - Image file is corrupted
  - Restore on different PDA if the backup image is created requiring serial no. matching
  - Restore on different ROM version if the backup image is created by "backup system" option. Restoring files on unmatched ROM version would create system instability and corruption issue
  - Restore on different partition size. This is normally caused by different local backup disk size as it also means different partition size of system backup. For example, restoring to a 20MB backup disk PDA by backup image originally created from a 40MB backup disk PDA

### Note:

- Restore is allowed on both admin & user mode
- When restore starts, Wi-Fi would be stopped automatically for the best restore performance.
- Restore would not start if battery is under 50%. However, it doesn't apply if PDA is being charged
- After successfully restore and press OK, PDA will reboot and screen calibration is required

## Chapter 12: Specifications

System	
<b>Processor</b>	Samsung 300MHz CPU (ARM9)
<b>Operating System</b>	<ul style="list-style-type: none"> <li>▪ Microsoft Windows CE™ 5.0</li> <li>▪ Multilingual Operating System<sup>1</sup></li> </ul>
Memory	
<b>Memory</b>	64MB
<b>Flash Memory</b>	128MB (System ROM + user persistent storage)
Display and Input / Output Devices	
<b>Display</b>	2.8 inch TFT QVGA / 64K color
<b>Input Devices</b>	Stylus / Touch sensitive display for stylus and fingertip
Audio, Slots, Ports & Cover	
<b>Audio</b>	buzzer (music disabled)
<b>Ports</b>	<ul style="list-style-type: none"> <li>▪ 1 x mini-USB 1.1 Host &amp; Client</li> <li>▪ 1 x DC power jack</li> </ul>
<b>Slots</b>	1 x SD card expansion slot
<b>Stripe Mount</b>	2 x Stripe mount
<b>Cover</b>	Protective plastic flip cover
Communication	
<b>Wireless</b>	<ul style="list-style-type: none"> <li>▪ Wi-Fi (802.11b/g)</li> <li>▪ Single SSID (Persistent wireless connection)</li> <li>▪ Fast roaming</li> <li>▪ Always on Wi-Fi (even PDA sleeps)</li> </ul>
<b>Data Synchronization with PC</b>	<ul style="list-style-type: none"> <li>▪ Data transfer via Microsoft ActiveSync</li> <li>▪ 1 x mini-USB cable</li> </ul>
Application Deployment & Protection	
<b>Configurations Lockdown</b>	<ul style="list-style-type: none"> <li>▪ Protected Admin &amp; User Mode</li> <li>▪ Administrator password</li> <li>▪ Prohibit files access &amp; program installation in User Mode</li> </ul>
<b>Mass Deployment</b>	Clone Utility for deploying master configured PDA to many PDAs
<b>Backup &amp; Restore</b>	Backup & Restore utility
Optional - Magstripe Card Reader (MSR) (Coming soon)	
<b>MSR</b>	<ul style="list-style-type: none"> <li>▪ Integrated with the PDA</li> <li>▪ Pluggable via mini-USB</li> <li>▪ Low power consumption</li> </ul>

<b>Security</b>	Data output is encrypted at hardware level
<b>Real-time Notification Features</b>	
<b>Notification Features</b>	<ul style="list-style-type: none"><li>▪ Vibrator</li><li>▪ Programmable LED (6 colors)</li></ul>
<b>Battery, Power &amp; Charger</b>	
<b>Standard Battery</b>	Removable and rechargeable 1200mAh battery
<b>Optional - Extended Battery</b>	Removable and rechargeable 1800mAh battery
<b>Standard Charger</b>	AC to DC Adaptor (connect to DC power jack)
<b>Optional - 6-in-1 Multi Charger</b>	Standalone charger with 6 independent channels for 1200 & 1800mAh battery
<b>Dimensions &amp; Weight</b>	
<b>Dimensions (H x W x D)</b>	3.93" x 2.40" 0.61" (100 x 61 x 15.5 mm)
<b>Weight</b>	110.5g (3.89 oz) (includes standard 1200mAh battery, without MSR)

**<< End of Document >>**